

# HCAA ADVISORY NOTE ON UNTRAPPED WASTEWATER SYSTEMS

REVISION 2: AUGUST 2022



## ADVISORY NOTE ON UNTRAPPED WASTEWATER SYSTEMS

From time to time wastewater discharges might be able to drain into an untrapped wastewater system that either discharges into a sanitary plumbing system, sanitary drainage system, stormwater system or maybe a storage tank for special use or reuse.

These systems could be used for draining;

- condensate discharge points
- floor drains at the base of meter cupboards,
- Floor drains generally
- air valves
- flushing points
- planter boxes that are not exposed to external elements (ie internal to the building)
- wet wall / dry wall drains
- unique discharges to be reused such as RO membrane concentrate or the like as these discharges technically do not generate offensive odours

Although you might believe that you have designed a cost efficient system and intelligently avoided cumbersome requirements in AS/NZS3500.2, there are a few unintended consequences not directly related to the Plumbing Code of Australia performance requirements at first glance.

These are


- Acoustic noise spread
- Obnoxious gases, smells or the like (mixed between habitable and non-habitable spaces)
- Smoke spread
- Fire spread

The unintended consequences have increased risk to life safety and caused non-compliances with the BCA in relation to fire safety and ventilation.

Untrapped wastewater systems when connecting multiple different areas/floors together provides a non-attenuated path for noises to spread through the building using the pipework as a conduit for the sound to travel in.

As an example you have an untrapped wastewater system draining something in a habitable space, something in a plant room and something in a carpark. Due to the open ends of the pipe the plant noise will enter the buildings habitable space as will the noise of cars driving around in the building.

The provision of a water trap or waterless trap will attenuate this.



Untrapped wastewater systems when connecting multiple different areas/floors together provides a pathway for obnoxious gases or smells to enter the building using the pipework as a conduit for the smells to travel in.

As an example you have an untrapped wastewater system draining something in a habitable space, something in a plant room where gas is burned, something in a carpark and something in a bin room.

Due to the open ends of pipe the obnoxious gasses / products of combustion from the burned gas and car exhaust will enter the habitable space, plus the garbage smell from the bin room would enter the habitable space.

The provision of a water trap or waterless trap will attenuate this.

Untrapped wastewater systems when connecting multiple different areas/floors together provides a pathway for smoke to spread through the building using the pipework as a conduit for the smoke to travel in.

This will cause havoc based on a managed evacuation system and could overload the fire exits and cause loss of life. The smoke management system would be shutdown due to smoke being detected on multiple floors assuming those floors have changed over to consider a fire effected floor as part of say a zone smoke system.

The outcomes here could be very serious and the provision of a water trap or waterless trap will attenuate this.

Untrapped wastewater systems when connecting multiple different areas/floors together provides a pathway for fire spread through the building due to the passive fire systems available on the market not adequately considering untrapped wastewater systems.

The BCA requires passive fire systems to be tested in accordance with AS1530, which in turn has two different test methods:

- one for a floor waste as there could be objects placed on top of the floor waste that could catchlight due to heat transfer and
- the other for a longer vertical section of pipe.

The floor waste collar activates at a faster rate than a vertical pipe collar as this style of system is either protected by a water trap or contains a vent.

The provision of adequate passive fire protection could be considered grey and therefore an untrapped wastewater system could be suggested to encourage fire spread in a building.

The floor waste collar activates at a faster rate than a vertical pipe collar as this style of system is either protected by a water trap or contains a vent.

The provision of adequate passive fire protection could be considered grey and therefore an untrapped wastewater system could be suggested to encourage fire spread in a building.

Below is an example of what an untrapped wastewater system looks like over multiple floors (not to be designed):

### Untrapped Wastewater System example

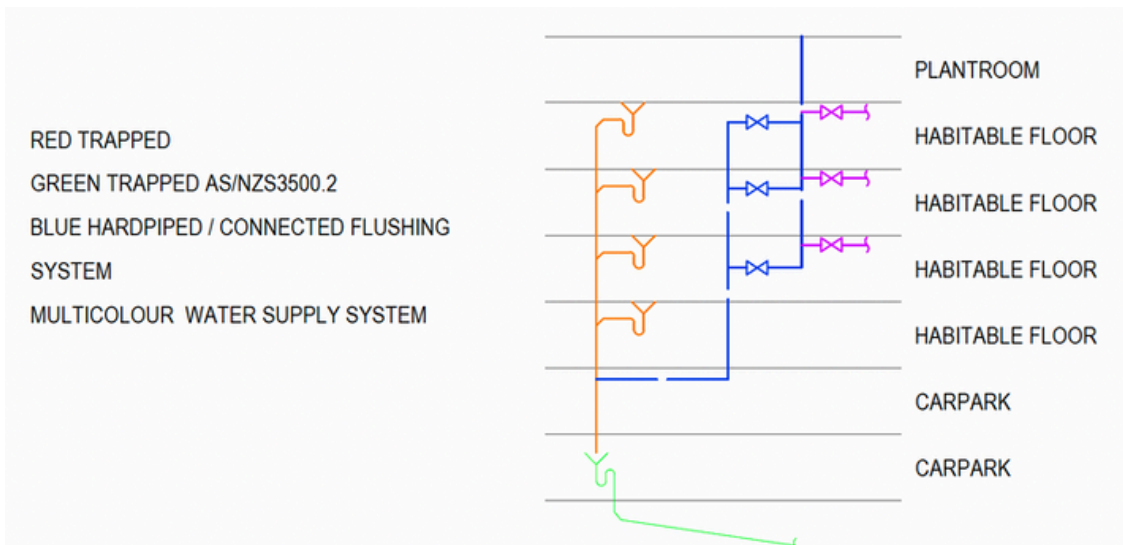


#### LEGEND

- SANITARY DRAINAGE
- - - SANITARY VENT
- MECHANICAL DRAINAGE
- - - STORMWATER DRAINAGE

Systems should either be a complete hard piped system or contain traps or a combination of both per the diagrams below (to be designed like this):

**Trapped Wastewater System example:**



**LEGEND**

- SANITARY DRAINAGE
- - - SANITARY VENT
- MECHANICAL DRAINAGE
- - - STORMWATER DRAINAGE

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